

CLAIMS PENDING

1. (Previously Presented) A chemical vapor deposition process for the preparation of a single-wall carbon nanotube, comprising:

providing a methane gas composition and a supported iron-containing catalyst to a chemical vapor deposition chamber, and

decomposing the methane gas composition in the presence of the supported iron-containing catalyst, under a gas pressure of about 400 torr to about 600 torr and for a time sufficient to grow single-wall carbon nanotubes at a temperature from about 670° C to about 800° C.

2. (Original) A process of claim 1, wherein said temperature is from about 670°C to about 750°C.

3. (Original) A process of claim 1, wherein said temperature is from about 670°C to about 700°C

4. (Original) A process of claim 1, wherein said supported iron-containing catalyst is selected from the group consisting of:  $\text{Al}_2\text{O}_3/\text{Fe}/\text{Mo}/\text{Co}$ ,  $\text{Al}_2\text{O}_3/\text{Fe}/\text{Mo}$ ,  $\text{Al}_2\text{O}_3/\text{Fe}/\text{Co}$ ,  $\text{Al}_2\text{O}_3/\text{Fe}$ , and mixtures thereof.

5. (Previously Presented) A process of claim 4, wherein the supported iron-containing catalyst is  $\text{Al}_2\text{O}_3/\text{Fe}/\text{Mo}$  catalyst, and wherein the catalyst has a molar ratio of  $\text{Al}_2\text{O}_3:\text{Fe}:\text{Mo}$  of about (10-20) : 1 :  $1/3$ .

6. (Previously Presented) A process of claim 1, wherein said methane gas composition is methane or a mixture of methane and a carrier gas.

7. (Original) A process of claim 6, wherein said carrier gas is selected from the group consisting of: argon, nitrogen, helium, and mixtures thereof.
8. (Original) A process of claim 7, wherein said methane gas and said carrier gas are used in a ratio of about 1:1 by volume to about 1:10 by volume.
9. (Previously Presented) A chemical vapor deposition process for the preparation of single-wall carbon nanotubes, comprising:
- providing a methane gas composition and an  $\text{Al}_2\text{O}_3/\text{Fe}/\text{Mo}$  catalyst to a chemical vapor deposition chamber, and
- decomposing the methane gas composition in the presence of the  $\text{Al}_2\text{O}_3/\text{Fe}/\text{Mo}$  catalyst, under a gas pressure of about 400 torr to about 600 torr and for a time sufficient, to grow single-wall carbon nanotubes at a temperature from about  $670^\circ\text{C}$  to about  $800^\circ\text{C}$ ,
- wherein said single-wall carbon nanotubes have a diameter distribution ranging from about 0.7 nm to about 2.1 nm.
10. (Previously Presented) A process of claim 9, wherein the  $\text{Al}_2\text{O}_3/\text{Fe}/\text{Mo}$  catalyst has a molar ratio of  $\text{Al}_2\text{O}_3:\text{Fe}:\text{Mo}$  of about  $(10-20) : 1 : \frac{1}{3}$ .
11. (Original) A process of claim 9, wherein said temperature is from about  $670^\circ\text{C}$  to about  $750^\circ\text{C}$ .
12. (Original) A process of claim 9, wherein said temperature is from about  $670^\circ\text{C}$  to about  $700^\circ\text{C}$ .

13. (Previously Presented) A chemical vapor deposition process for the preparation of single-wall carbon nanotubes, comprising:

providing a methane gas composition and an  $\text{Al}_2\text{O}_3/\text{Fe}/\text{Co}/\text{Mo}$  catalyst to a chemical vapor deposition chamber, and

decomposing the methane gas composition in the presence of the  $\text{Al}_2\text{O}_3/\text{Fe}/\text{Co}/\text{Mo}$  catalyst, under a gas pressure of about 400 torr to about 600 torr and for a time sufficient, to grow single-wall carbon nanotubes at a temperature from about  $680^\circ\text{C}$  to about  $800^\circ\text{C}$

wherein said single-wall carbon nanotubes have a diameter distribution ranging from about 0.7 nm to about 2.1 nm.

14. (Previously Presented) A process of claim 13, wherein the  $\text{Al}_2\text{O}_3/\text{Fe}/\text{Co}/\text{Mo}$  catalyst has a molar ratio of  $\text{Al}_2\text{O}_3:\text{Fe}:\text{Co}:\text{Mo}$  of about  $(10-20) : 1 : 0.23 : 1/6$ .

15. (Previously Presented) A process of claim 13, wherein the  $\text{Al}_2\text{O}_3/\text{Fe}/\text{Co}/\text{Mo}$  catalyst has a molar ratio of  $\text{Al}_2\text{O}_3:\text{Fe}:\text{Co}:\text{Mo}$  of about  $(10-20) : 1 : 0.23 : 1/18$ .

16. (Previously Presented) A process of claim 13, wherein the  $\text{Al}_2\text{O}_3/\text{Fe}/\text{Co}/\text{Mo}$  catalyst has a molar ratio of  $\text{Al}_2\text{O}_3:\text{Fe}:\text{Co}:\text{Mo}$  of about  $(10-20) : 1 : 0.23 : 1/36$ .

17. (Original) A process of claim 13, wherein said temperature is from about  $680^\circ\text{C}$  to about  $750^\circ\text{C}$ .

18. (Original) A process of claim 13, wherein said temperature is from about  $680^\circ\text{C}$  to about  $700^\circ\text{C}$ .